

Appln No. 09/627,571

Amdt date July 1, 2005

Reply to Office action of April 1, 2005

REMARKS/ARGUMENTS

Claims 1-36 will be pending in this application upon entry of the above amendments. Claims 1-2, 13-16, 18, 20-21, 25, and 27 have been amended. Claims 30-36 have been added. The amendments find full support in the original specification, claims, and drawings. No new matter has been added. In view of the above amendments and remarks that follow, reconsideration, reexamination, and an early indication of allowance of the now-pending claims 1-36 are respectfully requested.

Claims 1, 2, and 20 have been amended to correct certain informalities. Withdrawal of the objection to claims 1-12, 20-24, and 29-34 is therefore respectfully requested.

Claims 1-12, 14-16, and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant submits that the amendments to claims 1, 2, 14, 15, and 16 now overcome this rejection. Withdrawal of the rejection under 35 U.S.C. 112, second paragraph, is respectfully requested.

Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okunev et al. (U.S. Patent No. 6,272,171) in view of Scull et al. (U.S. Patent No. 6,108,354). Claims 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okunev et al. in view of Scull, and further in view of Ohta (U.S. Patent No. 5,265,125). Applicant respectfully traverses these rejections.

Independent claim 1 has been amended to recite "assigning constellation points for a current constellation index

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corresponding to a plurality of phase intervals, based on one or more characteristic sets corresponding thereto." (Emphasis added). Independent claims 13 and 20 have been amended to recite that "a respective plurality of the phases" correspond to "a particular one of J constellation indices." (Emphasis added). Claims 25 and 27 have been amended to recite "selecting constellation points for a constellation index corresponding to a plurality of the N phases using symbol estimates characteristic of the one or more characteristic groups associated with the plurality of the N phases." (Emphasis added). None of the cited reference teach or suggest these limitations.

The Examiner interprets the symbols in Okunev's slots as the recited "phase intervals." Applicant respectfully disagrees. The symbols disclosed in Okunev are simply 8-bit binary numbers (octets) which correspond to particular signaling levels. (See, Col. 2, lines 25-44). Given the plain and ordinary meaning of "phase intervals" which is supported by the specification, such 8-bit binary numbers cannot be interpreted to be the recited "phase intervals."

Even if Okunev's slots were interpreted to be the recited "phase intervals," such an interpretation also fails to render the claims unpatentable as obvious over Okunev and Scull. In Okunev, constellation points are assigned for each individual slot. If Okunev's slots are interpreted to be the recited "phase intervals," the amended claims would require that a single constellation index correspond to a plurality of slots. However, Okunev is clear that a preliminary constellation is

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generated "on a per-slot basis." (Col. 18, lines 34-38). Any optimizations that may occur after the generation of the preliminary constellation are also done on a per-slot-basis. Accordingly, claims 1, 13, 20, 25, and 27 are now in condition for allowance.

Claims 2-12, 14-19, 21-24, 26, and 28-30 are also in condition for allowance because they depend on an allowable base claim, and for the additional limitations that they contain.

Claims 31-36 are new in this application. Claims 31-36 are also in condition for allowance because they depend on an allowable base claim, and for the additional limitations that they contain. Specifically, claims 31 and 34 recite that "each characteristic group exhibits a different impairment characteristic." (Emphasis added). In Okunev, any characteristic group that may be disclosed is associated with a single impairment characteristic, namely, robbed-bit signaling.

Claims 32 and 35 recite that "the selecting of the constellation points includes identifying a symbol code for which symbol amplitude estimates from each of a plurality of the characteristic groups associated with the plurality of the phases exceed a symbol estimate associated with a last assigned constellation point." (Emphasis added). In Okunev, any distance calculation for selecting the constellation points is done on a per-slot basis, but not based on "each of a plurality of the characteristic groups associated with the plurality of the phases" as is recited in claims 32 and 35.

Claims 33 and 36 specifically recite that "the phases are timing phases, and each timing phase includes a symbol

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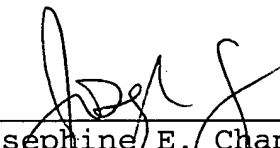
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associated with an amplitude level." Thus, the symbols included in Okunev's slots cannot be interpreted to be the recited "phases" as proposed by the Examiner.

In view of the above amendments and remarks, reconsideration, reexamination, and an early indication of allowance of the now-pending claims 1-36 are respectfully requested.

Respectfully submitted,

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